Erie County Health Department
Vector Control Field Laboratory

2005 Lyme Disease Survey and Report

17 Feb. 2006

Overview:

Lyme disease is a bacterial disease caused by an infection with the *Borrelia burgdorferi* spirochete. Transmission of the disease to humans and dogs occurs from the bite of an infected Blacklegged Tick, scientific name *Ixodes scapularis* and also commonly known as the Deer Tick. Note that on the west coast of the United States, the vector species is *Ixodes pacificus*. Larvae and nymphs feed on white-footed mice which are the reservoir for the disease. Adult ticks feed on larger mammals including the white tail deer, dogs and humans.

The blacklegged tick takes a bloodmeal by inserting its hypostome into the skin near a capillary, attaches itself and subsequently engorges itself by taking a bloodmeal over the next several days. The tick continuously injects anticoagulant saliva into the wound. Transmission of the bacteria occurs between 24 and 36 hours after attachment as the Lyme disease causing spirochete migrates from the tick's midgut to the salivary glands. The bacteria may cause a localized rash known as erythema migrans and appears as a reddened area surrounding a lighter area. It is also know as a bulls-eye rash due to its appearance.

When in known tick habitat, it is recommended that a daily "tick check" be performed. If the long term attachment of a tick is prevented by removing them daily, the transmission of the disease should be effectively prevented. This is problematic in that the tick in the nymph stage is quite small and is easily overlooked.

Lyme disease is endemic in the eastern portion of New York State, but is constantly on the move especially along the Hudson Valley. It is also endemic in Massachusetts, Connecticut and New Jersey. Cases have been documented in Western New York and it is vital that Lyme disease surveillance and tick identification continue in Erie County, the Niagara Frontier and Western New York.

Human Lyme Disease Cases Confirmed by the NYSDOH in Erie County*					
Year	2005	2004	2003	2002	2001
Number of Human Cases	11	1	1	1	4

*note: NYSDOH reporting form "DOH 389" does not require a travel history

Ticks Identified in Erie County*			
Year	**Total Ticks Identified**	***Ixodes scapularis***	**% *Ixodes scapularis***
2005	76	21	27.6%
2004	49	8	16.3%
2003	84	33	39.3%
2002	103	16	15.5%
2001	49	9	18.4%
Total	361	87	24.1%

*Note: Ticks were identified by the Erie County Vector Field Laboratory, NYSDOH Western Regional Entomologist and the NYS Wadsworth Laboratory

2005 Canine Lyme disease survey results:

All 66 Small Animal Vet Hospitals in Erie County responded to the survey. Of the 66 Vet Hospitals surveyed, 47 test for Lyme disease.

54 Dogs tested* positive for Lyme disease and, of those, 22 reportedly had no relevant travel history.

*Note: Laboratory confirmation of Lyme disease relies on indirect methods such as antibody detection. Scientific studies have demonstrated variable levels of sensitivity (30-80%) and specificity (80-90%) associated with the performance of these assays and are dependant upon stage of the infection, presence of cross-reacting antibodies, etc. Therefore, it must be assumed that a laboratory result for the diagnosis is not absolute and performance characteristics of the assay must be considered. Additionally, the diagnosis of the disease cannot rely on the laboratory result alone, but must incorporate clinical recognition, history, and other pertinent information.